

**IN THE CLAIMS**

1. **(Currently Amended)** A flow homogenizer for insertion in a pipeline conveying a particulate material carried by a carrier fluid comprising a pipe having an inlet end and an outlet end and including a core defined by one or more core pipe sections connected in series between the inlet end and the outlet end, ~~the~~ or each pipe section defining a relatively gradual or rapid change in cross-sectional area in order to mix particulate material and carrier fluid entering the inlet end to form a homogeneous mixture on exit from the outlet end.

**Claims 2-21 (Cancelled)**

22. **(New)** A flow homogenizer according to Claim 1 wherein the cross-sectional area of a core pipe section extending from the inlet end increases from the cross-sectional area of the inlet end to a relatively larger cross-sectional area.

23. **(New)** A homogenizer according to Claim 1 wherein the cross-sectional areas of the inlet and outlet ends are equal.

24. **(New)** A flow homogenizer according to Claim 1 wherein the core is defined by two core pipe sections, the first core pipe section defining a relatively gradual increase in cross-sectional area from an inlet cross-sectional area to a maximum cross-sectional area and the second core pipe section defining a relatively rapid decrease in cross-sectional area from the

maximum cross-sectional area to an outlet cross-sectional area.

25. (New) A flow homogenizer according to Claim 1 wherein the core is defined by two core pipe sections, the first core pipe section defining a relatively gradual increase in cross-sectional area from an inlet cross-sectional area to a maximum cross-sectional area and the second core pipe section defining a relatively gradual decrease in cross-sectional area from the maximum cross-sectional area to an outlet cross-sectional area.

26. (New) A flow homogenizer according to Claim 1 wherein the core is defined by two core pipe sections, the first core pipe section defining a relatively gradual increase in cross-sectional area from an inlet cross-sectional area to a maximum cross-sectional area and the second core pipe section defining a relatively rapid decrease in cross-sectional area from the maximum cross-sectional area to an outlet cross-sectional area, the length of the first core pipe section being 1.5 times the diameter of the core at the inlet end and the diameter of the core at the junction between the first and second core pipe sections being 1.3 times the diameter of the core at the inlet end.

27. (New) A flow homogenizer according to Claim 1 wherein the core is defined by two core pipe sections, the first core pipe section defining a relatively gradual increase in cross-sectional area from an inlet cross-sectional area to a maximum cross-sectional area and the second core pipe section defining a relatively gradual decrease in cross-sectional area from the maximum cross-sectional area to an outlet cross-sectional area, the length of the first core pipe

section being 1.5 times the diameter of the core at the inlet end and the diameter of the core at the junction between the first and second core pipe sections being 1.3 times the diameter of the core at the inlet end.

28. (New) A flow homogenizer according to Claim 1 wherein the core is defined by two core pipe sections, the first core pipe section defining a relatively rapid increase in cross-sectional area from an inlet cross-sectional area to a maximum cross-sectional area and the second core pipe section defining a relatively rapid decrease in cross-sectional area from the maximum cross-sectional area to an outlet cross-sectional area.

29. (New) A flow homogenizer according to Claim 1 wherein the core is defined by two core pipe sections, the first core pipe section defining a relatively rapid increase in cross-sectional area from an inlet cross-sectional area to a maximum cross-sectional area and the second core pipe section defining a relatively gradual decrease in cross-sectional area from the maximum cross-sectional area to an outlet cross-sectional area.

30. (New) A flow homogenizer according to Claim 1 wherein the core is defined by four core pipe sections and a middle section, the first and second core pipe sections being connected in series between the inlet end and the middle section, and the third and fourth core pipe sections being connected in series between the middle section and the outlet end, the first core pipe section defining a gradual increase in cross-sectional area from an inlet cross-sectional area to a first maximum cross-sectional area, the second core pipe section defining a relatively rapid

decrease in cross-sectional area from the first maximum cross-sectional area to a middle cross-sectional area, the third core pipe section defining a relatively gradual increase in cross-sectional area from the middle cross-sectional area to a second maximum cross-sectional area and the fourth core pipe section defining a relatively rapid decrease in cross-sectional area from the second maximum cross-sectional area to an outlet cross-sectional area.

31. (New) A flow homogenizer for insertion in a pipeline conveying a particulate material carried by a carrier fluid comprising a pipe having an inlet end and an outlet end and including a core defined by one or more core pipe sections connected in series between the inlet end and the outlet end, each core pipe section defining a relatively gradual or rapid change in cross-sectional area in order to mix particulate material and carrier fluid entering the inlet end to form a homogeneous mixture on exit from the outlet end, the flow homogenizer further including a flow control system located at the inlet end.

32. (New) A flow homogenizer for insertion in a pipeline conveying a particulate material carried by a carrier fluid comprising a pipe having an inlet end and an outlet end and including a core defined by one or more core pipe sections connected in series between the inlet end and the outlet end, each core pipe section defining a relatively gradual or rapid change in cross-sectional area in order to mix particulate material and carrier fluid entering the inlet end to form a homogeneous mixture on exit from the outlet end, the flow homogenizer further including a flow control system located at the outlet end.

33. (New) A flow homogenizer according to Claim 31 wherein the flow control system includes at least one wedge-shaped ramp on an inner surface of the pipe.

34. (New) A flow homogenizer according to Claim 32 wherein the flow control system includes at least one wedge-shaped ramp on an inner surface of the pipe.

35. (New) A flow homogenizer according to Claim 31 wherein the flow control system includes a plurality of wedge-shaped ramps spaced about the inner circumference of the inner surface of the pipe.

36. (New) A flow homogenizer according to Claim 32 wherein the flow control system includes a plurality of wedge-shaped ramps spaced about the inner circumference of the inner surface of the pipe.

37. (New) A flow homogenizer according to Claim 31 wherein the flow control system includes at least one aerofoil on an inner surface of the pipe.

38. (New) A flow homogenizer according to Claim 32 wherein the flow control system includes at least one aerofoil on an inner surface of the pipe.

39. (New) A flow homogenizer according to Claim 31 wherein the flow control system includes a plurality of aerofoils spaced about the inner circumference of the inner surface of the

pipe.

40. (New) A flow homogenizer according to Claim 32 wherein the flow control system includes a plurality of aerofoils spaced about the inner circumference of the inner surface of the pipe.

41. (New) A flow homogenizer according to Claim 31 wherein the inner surface of the input pipe section is shaped to define a flow control system in the form of a tapered throat.

42. (New) A flow homogenizer according to Claim 32 wherein the inner surface of the input pipe section is shaped to define a flow control system in the form of a tapered throat.

43. (New) A flow homogenizer according to Claim 31 wherein the flow control system includes a combination of one or more wedge-shaped ramps, one or more aerofoils and/or a tapered throat.

44. (New) A flow homogenizer according to Claim 32 wherein the flow control system includes a combination of one or more wedge-shaped ramps, one or more aerofoils and/or a tapered throat.

45. (New) A flow homogenizer according to Claim 1 further including one or more air jets at the inlet end.

46. **(New)** A flow homogenizer according to Claim 31 further including one or more air jets at the inlet end.

47. **(New)** A flow homogenizer according to Claim 32 further including one or more air jets at the inlet end.

48. **(New)** A flow homogenizer according to Claim 1 further including one or more air jets at the outlet end.

49. **(New)** A flow homogenizer according to Claim 31 further including one or more air jets at the outlet end.

50. **(New)** A flow homogenizer according to Claim 32 further including one or more air jets at the outlet end.